

ABSTRACT

H plane and E plane of a second rectangular waveguide element (20) are inclined at an angle of 45° with respect to H plane and E plane of a first rectangular waveguide element (10). A connection element (30) disposed between the first and second rectangular waveguide elements (10), (20) has an inner periphery that surrounds a central axis extending in a direction of electromagnetic-wave propagation. The inner periphery includes surfaces parallel to H plane and E plane of the first rectangular propagation path element (10), and these surfaces form a staircase such that abutting sections between the surfaces parallel to H plane and the surfaces parallel to E plane constitute projections. The staircase is inclined in a direction corresponding to a direction in which H plane of the second rectangular propagation path element (20) is inclined. Accordingly, an electric field is concentrated in the projections of the connection element (30), and a plane of polarization of an electromagnetic wave propagating through the connection element (30) is rotated from a plane of polarization in the first rectangular waveguide element (10) towards a plane of polarization in the second rectangular waveguide element (20).